

tion is very simple in plan. Application is made for the inspection of a house, and the inspection is made personally by both the chief sanitary officer and the surveyor, who supply a detailed report on the sanitary condition of the property, together with a specification of the work necessary to put it into a condition satisfactory to the Association. While this work is in progress it is supervised by these officers, and on its completion the Council grant a certificate guaranteeing the sanitary condition of the property, subject to an annual inspection by the officers of the Association.

AT an examination held by the Sanitary Institute of Great Britain on November 3 and 4, eight candidates presented themselves, and the Institute's Certificate of Competency as Local Surveyor was not awarded, but the Institute's Certificate of Competency as Inspector of Nuisances was awarded to J. Horrocks, W. Sortwell, and J. W. Witts.

THE Linnean Society of New South Wales has had the enterprise to organise a course of lectures on zoology, open to all who care to take advantage of them. They begin on October 4, and are to extend to December 9, about two lectures being given each week. The lecturer is Mr. W. A. Haswell, M.A., B.Sc.

IT is announced, we learn from the *Lancet*, that the three volumes of the *Transactions* of the International Medical Congress will be published and ready for distribution at the beginning of December. To non-members the price of the work will be 30s., and the volumes can each be bought separately. The first volume will contain the list of members, accounts of the general meetings, the general addresses, the description of the specimens exhibited in the museum, and the transactions of the sections of anatomy, physiology, pathology, and *materia medica* and pharmacology. Volume II. will contain the transactions of the sections of medicine, surgery, State medicine, military medicine and surgery, obstetric medicine and surgery, and diseases of children. Volume III. will contain similarly the transactions of the sections of ophthalmology, mental diseases, diseases of the skin, diseases of the throat, diseases of the ear, and diseases of the teeth. Orders for the work will be received by J. W. Kolckmann of Langham Place.

BULLETIN No. 6 of the United States Entomological Commission consists of a General Index and Supplement to the nine Reports on the Insects of Missouri, by Prof. C. V. Riley, forming in itself a volume of 177 pages. It is very complete. All the descriptions of new species described in the Reports are reproduced, with such alterations indicated as time may have rendered necessary. It is carefully analytical, and one heading will strike many as introducing a comparatively new term, *i.e.* the "List of descriptions of the adolescent states."

WE have already referred to the Smithsonian Report for 1879. Mr. O. J. Mason's bibliography of Anthropological Investigations, which appears in the Report, has been separately reprinted, and will be found useful by those interested in the subject.

DR. OTTO FINSCH, whose scientific journey in Polynesia we have repeatedly referred to, arrived at Wellington, New Zealand, in June last, and now intends returning soon via Sydney.

THE additions to the Zoological Society's Gardens during the past week include a Tiger (*Felis tigris* ♀) from Assam, presented by Col. Owen Williams, M.P., F.Z.S.; a Black Bear (*Ursus americanus*) from North America, presented by Capt. McPherson, barque *Ocean Nymph*; two Common Polecats (*Mustela putorius*) from France, presented by M. P. Pichot; a Young Ostrich (*Struthio camelus*) from Africa, presented by Mr. William Jerram; a Great Eagle Owl (*Bubo maximus*), European, deposited; three Common Curlews (*Numenius arquata*), two Red-throated Divers (*Colymbus septentrionalis*), European, received on approval.

OUR ASTRONOMICAL COLUMN

DOUBLE-STARS.—An important series of observations of double-stars has been recently issued from the United States Naval Observatory at Washington. It includes all the measures made by Prof. Hall with the 26-inch refractor from 1875 to 1880, and a few in the year 1863 with the 9.6-inch equatorial. There are observations of double-stars selected by M. Otto Struve for the comparison of micrometrical measurements by different astronomers, which remain for discussion when those of other observers are published. In addition, in order to apply a geometrical test to the observations, Prof. Hall has carefully measured the multiple stars ζ 2703 and 311, and the stars in the trapezium of Orion. The observations have been made with the filar-micrometer by A. Clark and Sons, which is commonly used with the large equatorial. Then follow measures of objects chiefly taken from the catalogues of the Strubes, with a few others mostly discovered by Mr. Burnham. ζ 2 was not separated with power 888 in 1879. Of γ² Andromedae we find the angle 101° distance 0°358 for 1878·21; 40 Eridani (B.C.), 125°0, 3°515 for 1879·18. A great change is shown in O. Σ. 82; we have 230°8, 1°08 for 1848·67, while Prof. Hall's measures give 182°25, 0°765 for 1879·16. Mr. Marth's faint companion of Sirius, estimated 13m., was at 114°9, 71°4, at the epoch 1847·47, which, compared with the particulars at p. 38 of *Memoirs R.A.S.*, vol. 36, indicates fixity. Prof. Hall remarks on the supposed companions of Procyon, "I have never been able to see any of these companions that would stand the test of sliding and changing the eyepiece, turning the micrometer, &c., and am therefore doubtful of their existence. This is an interesting star for the powerful telescopes of the future." Six nights' measures of 25 Canum Venat. give 157°5, 0°507 for 1879·49; Dr. Doberck has calculated elements for this star, period 124½ years. γ Coronæ Borealis was single in 1875·76 and 1879. 72 Ophiuchi was examined in 1876 and 1879, but no close companion was visible: it may be remembered that at the epoch 1859·61 Secchi saw and measured the close star, and recorded it as "bene separata," and Otto Struve has measures of it in 1842, 1847, 1851, and 1876, those in the latter year corresponding almost precisely to the date of the Washington examinations, which seems to point to optical illusion, unless rapid variability is admitted. At the epoch 1879·77 δ Equulei was thought to be elongated at 150°, but Prof. Hall was not certain of its duplicity. Many of the more interesting binaries are included in this series of measures. The observations of the companion of Sirius made at Washington from 1866 to 1879 are given in a collective form, and we have observations of the faint stars near the annular nebula in Lyra, of which the following results possess value; *a* is the brightest of these stars and the one near the following end of the nebula; the angles and distances are referred to it except in the case of the companion of the triple star *f*, which are referred to *f* itself:—

Pos.	Dist.	Magnitudes.
<i>a</i> and <i>b</i> 1877·582 ... 225°50 ... 93°90 ...	"	10 and 14
<i>a</i> , , <i>c</i> 1877·582 ... 268°00 ... 115°84 ...	"	10 , 13-14
<i>a</i> , , <i>d</i> 1877·592 ... 286°90 ... 138°58 ...	"	10 , 12-13
<i>a</i> , , <i>e</i> 1877·592 ... 292°60 ... 122°90 ...	"	10 , 12
<i>a</i> , , <i>f</i> 1877·582 ... 313°70 ... 101°79 ...	"	10 , 13-14
<i>a</i> , , <i>g</i> 1877·592 ... 350°60 ... 77°18 ...	"	10 , 13
<i>f</i> , , <i>f</i> 1877·592 ... 253°30 ... 3°96 ...	13-14	13-14
<i>f</i> , , <i>f</i> 1877·592 ... 4°80 ... 17°32 ...	13-14	14-15

To connect the nebula with the stars the following estimates were made:—

- (1) The right line *a* to *b* is 11" outside of the nebula.
- (2) " " " *a* , , *c* very nearly bisects the darker, interior part of the nebula.
- (3) " " " *a* , , *f* is very nearly tangent to the nebula.
- (4) " " " *b* , , *c* is nearly tangent to the nebula.

It is added that during these observations no star was seen inside the above ring of stars, nor any star within the nebula itself. Afterwards it was thought that a star was seen within the nebula, but Prof. Hall was not able to measure it.

GEOGRAPHICAL NOTES

THE twenty-third and twenty-fourth parts of the *Mittheilungen der deutschen Gesellschaft für Natur und Völkerkunde Ostasiens* contain an article by Dr. L. Döderlein on Oshima, one of the

largest of the chain of islands which runs from the south coast of Japan to the east coast of Formosa, and which include the Loochooan archipelago. The island has never before been visited by a European, and presents many features of scientific and general interest. Dr. Döderlein spent sixteen days there, during six of which he was kept indoors and in darkness by a violent typhoon, which is described in the twenty-third number of the *Transactions* of the same Society by Mr. Knipping of Tokio. Two distinct types of people were found in the island, one pure Japanese, the other—probably the original inhabitants before the Japanese conquest—are about the same size as Japanese, but somewhat better built. The face is not so broad, and grows smaller towards the bottom, so that the chin is pointed, a feature rarely found in the Japanese, whose chins are broad and round. The lips and nose are thin, the bridge of the latter being convex. The eyes are large like those of the people of Southern Europe. The most striking portion of the appearance of this people, however, is the thick hair which they have all over their bodies. In this respect they closely resemble the Ainos of Yezo and Saghalin. The language, of which some examples are given, is evidently a dialect of Japanese, half-way between the latter and Loochooan. The customs are in many respects different from those of Japan. The women tattoo themselves on the backs of the hands (the Aino women, it will be remembered, tattoo the lips) from the wrists to the roots of the nails. The marks are always the same, but no explanation of the custom could be given by the people. When a girl reaches the age of thirteen the operation is performed on her hands by people specially trained for the purpose. Married women never blacken the teeth, as in Japan. Although the population is about 50,000, there is neither priest nor temple in the island, and the people know nothing of a deity to whom they should pray. They pay a sort of veneration to their ancestors, but only to individuals, not to the progenitors of their race or tribe, as in Japan. Life would run very smoothly with the people, were it not for a poisonous snake, called *habu*, belonging to the *Trimeresurus* class. It attains a length of six or seven feet, and is equal in venom to the most poisonous snakes. The Japanese fear to land on the island on account of these reptiles, which are found everywhere. They are said to pursue eels in the streams, to climb trees easily, and even to do so for the purpose of attacking travellers more easily. At night no one will stir abroad, for the bite is invariably fatal unless assistance is immediately procured. In one place a village of thirty-one houses was abandoned because the *habu* were numerous in the neighbourhood. The only cure employed is excision of the part, or even of the limb, which has been bitten. The general conclusion at which Dr. Döderlein arrives is that Oshima belongs in its fauna to the Loochoos, and has but little connection in this respect with Japan. He thinks, therefore, that the boundary between two great zoological regions, the paleoarctic and the oriental, lies between the island and Japan.

IN the last number of the *Proceedings* of the Berlin Geographical Society Dr. G. Fritsch has an extremely suggestive paper on geography and anthropology as mutual helpmates. The writer dwells upon the great aid each of these studies might derive from the sister science, if conducted in a broad and enlightened spirit. There are problems connected with the evolution of man and with his present distribution over the earth's surface, the solution of which depends upon a more exact knowledge of the former distribution of land and water, especially in the Tertiary period. The gap that separates man from any of the living anthropoids is profound; but it may possibly be bridged over or contracted to smaller proportions by the future discovery of fossil remains in the tropical regions, where the race most probably originated. Should these regions fail ultimately to yield the connecting links, then the conclusion would be strengthened that the evolution of mankind took place in some now submerged land, as, for instance, in the Lemuria of the Indian Ocean, or in the vast continent of which the Pacific islands may be regarded as the fragmentary remains. In the latter case the problem would remain practically insoluble, and the descent of men from some now extinct anthropoid forms would have to be regarded as at most an assumption incapable of strict demonstration. The present distribution of mankind, the writer goes on to point out, is largely bound up with more partial modifications of the earth's surface. A good instance is the Dravidian or aboriginal race of the Deccan, differentiated from the other types of the Asiatic mainland during the period that Southern India was still a triangular insular mass,

before the now connecting Northern plains were created by the alluvia of the Indus and Ganges. From considerations of this sort Dr. Fritsch suggests a scheme of fundamental human types differing in some respects from any hitherto proposed by anthropologists, and insists especially on the necessity of separating the Koi-Koin (Hottentots and Bushmen) from the Negro proper. He also argues on similar grounds for the unity of the "homo Americanus," whom he refuses to regard as a mere branch of the Mongol or any other type of the Old World.

IN a letter from Landana Père Carrie announces the arrival of Père Augouard's Stanley Pool expedition at Isangila on July 12. They were to resume their march for Manyanga on July 14, and hoped to reach it in eight days. Mr. Stanley is said to be hurrying on with his work in view of the expiry of his engagement with the International Association in March next.

THE chance of obtaining news of the missing *Jeannette* exploring expedition before the winter closes in appears to be getting very remote. The revenue cutter *Thomas Corwin* has returned to San Francisco, and the steamer *Alliance* to Halifax, N.S., without any intelligence whatever of the party, and now we hear that the visit of the *Rodgers* to Wrangel Land has also been without result. Small boats belonging to the *Rodgers* circumnavigated Wrangel Land. The party in the boats also surveyed different parts of the island. The views from the top of the mountain on Wrangel Land disclosed sea all around it. The season had been most favourable for the purposes of exploration, owing to the openness of the navigation. The *Rodgers* would probably take up her winter quarters at St. Lawrence Bay, whence she expected to sail in June next, and proceed as far north as possible. Lieut. Berry finds that Wrangel Land is an island sixty miles in length.

THE November number of *Petermann's Mittheilungen* is mostly occupied with two papers—On the Water-ways of France, by H. Keller; and on the Marsh Region of the Equatorial Nile System and its Grass Barriers. The latter is a paper of great value and interest, giving the results of the writer's observations during his recent terrible Nile journey. It is accompanied by a map of part of the Bahr el Abiad and Bahr el Seraf. There is also in the number a summary of the proceedings of the recent Venice Congress.

THE Geographical Society at Bremen has received a telegram from the Brothers Krause, dated the 6th inst., announcing their safe arrival at San Francisco with good scientific and ethnographic collections. These explorers had visited the Chukchi Peninsula at various points, and intended spending the winter in the north of Alaska.

SCIENCE IN NEW SOUTH WALES

A GOODLY record of scientific work is furnished from time to time by our vigorous colonies on the Australian continent, where (as in other young countries), if the aids to science are not so complete as in some parts of Europe, the incitements to philosophical observation of natural phenomena are, for obvious reasons, peculiarly strong.

The *Journal and Proceedings* of the Royal Society of New South Wales for 1880, recently received by us, includes, with other matter, many valuable observations adding to a knowledge of the country. We gather that within the last quarter of a century, from natural decay, ring-barking, and clearing for cultivation, at least one half of the timbered land of the colony (it is estimated) has been denuded of trees. A very considerable diminution of rainfall might perhaps have been expected in consequence, but this has certainly not been the case; indeed statistics rather indicate the reverse. The principal rivers, too, have not been diminished in volume of water. Instructive in this connection is the experience of Mr. Abbott, with ring-barking of trees on his run at Glengarry. This operation (for improvement of grazing capacity) he carried out in 1869 and 1870, on most of the watershed of three creeks, each about two miles long, draining well-defined valleys shut in by high ridges of basalt. For twenty years previously these creeks were dry watercourses, only holding water for a few days after rain, and in a few places in winter. But soon after ring-barking they became, and have continued, permanent streams, with increased flow of water and number of springs. The explanation Mr. Abbott offers is that the large proportion of the rainfall formerly taken up by the gum-trees and evaporated, now finds its way to the creeks and rivers.